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## 21.0 FIRE PROTECTION and SAFETY STANDARDS

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- 21.1 Building Standards. Fire protection criteria for all Navy CDCs is provided through Military Handbook (MIL-HDBK) 1008, Fire Protection for Facilities Engineering, Design and Construction. In addition to the following guidance, MIL-HDBK-1008 must be consulted for the latest and definitive criteria revisions.
- 21.1.1 The construction and fire protection criteria for CDCs shall also conform to the requirements for Educational Occupancies as outlined in the National Fire Protection Association (NFPA) 101, Life Safety Code except as noted in the following paragraphs.
- 21.2 Applicable Criteria. Construction and fire safety criteria applicable to any existing structure are those that were in effect at the time of its construction or most recent renovation, and criteria specifically stated for existing occupancies in NFPA 101, Life Safety Code.
- 21.2.1 Compliance with current criteria as detailed here is required for new construction or renovation of any CDC.
- 21.2.2 "Grand-fathering" (deferment of new criteria and code requirements) is strictly limited to the period prior to the next renovation or addition to an existing CDC which is otherwise in full compliance with criteria applicable at the time of construction or latest renovation.
- 21.2.3 Naval Facilities Engineering Command (NAVFACENGCOM) and BUPERS encourage all commands to upgrade existing CDCs to meet revised criteria at the earliest opportunity.
- 21.2.4 See paragraph 21.19, Compliance Inspections, for the methods used to evaluate criteria compliance through inspections. See paragraph 21.20 for guidance for implementation of corrective actions for non-compliance conditions.

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- 21.2.5 After the date of this instruction, a facility assessment to determine compliance with fire protection standards is required prior to the beneficial occupancy of any new or renovated CDC facility. This assessment shall be coordinated by NAVFACENGCOM and BUPERS.
- 21.3 Staffing Levels. Staffing levels should meet or exceed those listed in Section 12 of this instruction.
  - 21.3.1 It is acknowledged that these staffing levels are less than the recommended staffing levels specified by NFPA 101 Life Safety Code; therefore, to compensate for the less than recommended staffing levels, the additional requirements as outlined in paragraphs 21.4 and 21.5 shall apply.
- 21.4 Automatic Sprinklers. An automatic sprinkler system shall be provided throughout the entire building containing the CDC. Partial sprinkler systems are not permitted.
  - 21.4.1 Sprinkler water flow alarms shall be connected to the fire alarm evacuation system.
  - 21.4.2 Sprinkler heads in areas occupied by children shall be Underwriters Laboratory (UL)-listed or Factory Mutual (FM)-approved, commercially rated, quick-response heads with "ordinary" temperature ratings.

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21.4.3 Depending on type of construction, sprinklers were not required for some CDC facilities constructed, renovated, or occupied prior to issuance of OPNAV 1700.9B, dated 29 April 1988.

- In older facilities that are not sprinkler protected, the type of construction must comply with the applicable edition of OPNAV Instruction 1700.9 that was in effect at the time the facility was constructed, renovated, or occupied as a CDC.
- If a building is sprinkler protected, any type of construction is allowable.

21.5 Fire Alarm Systems. A supervised, local emergency fire alarm evacuation system is required throughout the entire building.

21.5.1 The fire alarm system shall include:

- Complete automatic smoke detection
- Manual pull stations
- Audiovisual alarm indicating devices
- Connections to the sprinkler water flow alarms

21.5.2 The system shall automatically transmit alarms to the fire department.

- Wherever automatic transmission of alarms is not possible, an alternate means of transmission, approved by the local Fire Marshal or cognizant installation personnel will be required.

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- 21.6 Exits. Exits shall be provided in accordance with the Educational Occupancies Section of NFPA 101 Life Safety Code except that at least one exit door shall lead directly to the outside from each activity room.
- 21.6.1 Dead end corridors are not permitted.
- 21.6.2 Exit doors from any rooms which are to be used for infant care shall be sufficiently wide to permit rolling cribs from their room(s) directly to the outside of the building away from any danger or hazards.
- Sufficiently wide equates to 36 inches in clear width, or the width of the evacuation crib plus 6 inches, whichever dimension is greater.
- 21.6.3 All exit doors shall be equipped with pressure-activated, panic hardware.
- 21.6.4 Provide low profile thresholds and ramps for all changes in elevation.
- 21.6.5 Provide appropriate escape paths with hardened surfacing (e.g., asphalt, concrete, etc.) leading away from the building.
- 21.7 Interior Finish Materials. The interior finish of exit access corridors and rooms used by children shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with American Society for Testing and Materials (ASTM) E-84 (NOTAL).
- 21.7.1 Other areas must have a flame spread rating of 75 or less and smoke developed rating of 100 or less.

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- 21.7.2 Carpet systems (carpet and cushion tested together as they will be installed) shall comply with Consumer Product Safety Commission (CPSC)-16 CFR 1630, Standard for Surface Flammability of Carpets and Rugs (NOTAL), and have a minimum average critical radiant flux of 0.50 watts per square centimeter.
- 21.8 Mixed Occupancies. Where CDC's are located in buildings containing other occupancies, the CDC shall be completely separated from all other occupancies by 1-hour fire-rated construction. Automatic sprinkler protection is a separate requirement, and does not constitute a substitute for 1-hour fire-rated construction.
- 21.9 Siting Requirements. The CDC shall be located only on the level of exit discharge which leads directly to the outside.
- 21.9.1 CDCs are not permitted in basements, above first floor levels (assuming the first floor to be the level of exit discharge).
- 21.9.2 CDCs are not permitted in buildings that house:
- Fuel storage shops
  - Maintenance shops including woodworking and painting areas, laundries and large kitchens (laundries and kitchens relating to CDPs are permitted)
  - Other areas which may be equally or more hazardous.
- 21.10 Height and Area Limits. Height and area limits and separation distances shall comply with the Uniform Building Code (UBC) as prescribed by MIL-HDBK-1008.

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- 21.11 Fire Extinguishers. Operational fire extinguishers shall be provided in accordance with NFPA 10. Extinguishers shall be located in cabinets.
- 21.12 Fire Prevention. Monthly fire protection inspections and exit drills shall be conducted by cognizant installation personnel. (See Section 32.)
- 21.12.1 Discrepancies shall be noted and time tables for correction provided.
- A written report shall be left with the CDC director and a copy forwarded to the cognizant department head following each inspection and exit drill.
  - Time of fire drills shall be varied to ensure evacuation is possible during all hours of operation.
- 21.12.2 A daily attendance record shall be maintained by the CDC staff in each activity space and shall be kept readily available for conducting "head counts" of evacuees outside the building in the event of fire or other emergency.
- 21.12.3 Occupancy load based on 35 usable square feet per child and evacuation procedures shall be posted at the entrance of each activity room.
- Section 19.2 defines usable space.
- 21.12.4 The use of highly combustible furnishings and decorations are not permitted (regardless of sprinkler protection).
- 21.12.5 Art work and teaching materials attached to the walls shall not exceed 20 percent of the wall area.

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21.12.6 Wastebaskets and other waste containers shall be of non-combustible materials.

21.12.7 Unvented, fuel-fire room heaters and portable electric space heaters shall not be permitted.

21.13 Safety Design

21.13.1 Every closet door latch shall be such that children can open the door from inside the closet.

21.13.2 CDCs shall not be located in windowless buildings.

21.13.3 Each room utilized as program space shall have at least one window or glazed opening to the building exterior. This window or glazed opening may be part of the direct exit door from the activity room.

21.14 Walking/Working Surface Hazard Protection

21.14.1 Each area shall be kept free from protruding nails, splinters, holes or loose boards.

21.14.2 Aisles and passageways shall be kept clean and in good repair with no obstructions across or in aisles that could create a tripping/emergency evacuation hazard.

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### **21.15 Fall Protection**

- 21.15.1 Changes in elevation having two or more risers shall be provided with stair railings or handrails appropriate for use by children and CDC staff. Additionally, tread depth for each step shall be a minimum of 13 inches in accordance with NFPA 101, Life Safety Code.
- 21.15.2 Covers and/or guard rails shall be provided to protect personnel from hazards of openings, falls from elevations, etc.
- 21.15.3 Injury potential of falls shall be minimized by reducing exposed or unfinished hard surfaces wherever possible.

### **21.16 Electrical and Mechanical Hazard Protection**

- 21.16.1 Extension cords are prohibited.
- 21.16.2 A ground fault circuit interrupter (GFCI) shall be provided for each circuit servicing toilets, kitchens, laundry facilities, exterior receptacles, and sink areas.
- 21.16.3 Electrical installation and equipment shall comply with the requirements of the NFPA 70, National Electrical Code.
- 21.16.4 Electrical receptacles located in child activity areas occupied by children under 5 years of age shall be protected by protective non-metallic caps in conjunction with the standard grounded receptacle and/or shall be controlled by a separate switch permitting them to be de-energized when not necessary for use.
- 21.16.5 In new construction receptacles shall be located at least 54 inches above the floor and out of the reach of children.



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- 21.16.6 The periphery of fan blades located less than 7 feet above the floor or working level shall be guarded with openings no larger than one-half inch.

21.17 Environmental and Toxic Hazard Protection

- 21.17.1 Exposure to toxic and hazardous substances such as lead paint, asbestos, formaldehyde, termiticide, cleaning supplies, etc., shall be eliminated or controlled.
- 21.17.2 Exposure to poisonous, toxic, or other hazardous plants, shrubbery or trees shall be eliminated by removal and replacement with acceptable materials if possible.
- 21.17.3 Potential exposure to bacteria or toxicological hazards shall be avoided by sanitizing tables in eating areas which are used for play, art and other activities.
- 21.17.4 Noise exposure to personnel within the facility shall not exceed 85 db(A).
- 21.17.5 Tack strips will be replaced with clip strips or magnetic holders which do not present puncture or ingestion hazard posed by loose tacks.

21.18 Emergency Procedures

- 21.18.1 Training and drills shall be conducted and documented for all staff on various emergency procedures.

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21.19 Compliance Inspections. Compliance of each Navy CDC with the applicable fire protection and safety criteria will be established through the following inspections. Deficiencies termed "priority" or hazard, or deemed as potentially life threatening represent an imminent hazard to children and are potential causes for closure of the CDC. These must be corrected within 90 days (as outlined in Section 4.6).

21.19.1 Fire Protection Engineering Surveys (FPES) are performed by NAVFACENGCOM personnel on a regular basis.

- This is an engineering evaluation of facilities with respect to fire protection and life safety.
- Engineering recommendations on a FPES report represent serious fire protection deficiencies or life safety hazards for which corrective action must be taken.
- If there is a CDC facility which has not been evaluated during a fire protection engineering survey at an activity, an Engineering Services Request (ESR) should be forwarded to the NAVFACENGCOM Engineering Field Division (EFD) for a FPES of the CDC.

21.19.2 Monthly fire protection inspections (as stipulated in paragraph 21.12) are performed by cognizant installation fire/safety personnel. See Section 32 for checklist.

- These inspections will include fire evacuation drills and compliance with the fire protection requirements of this instruction.

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- At least one unannounced comprehensive fire and safety inspection per year is performed by installation fire/safety personnel. This inspection will also include a summary review of the material condition and maintenance of the facility from a fire/safety standpoint.

21.20 Implementation of Corrective Action. The commanding officer shall be responsible for ensuring correction of fire protection deficiencies and life safety hazards.

21.20.1 Correction of these deficiency items means completion of any repairs or renovations required to bring the CDC into compliance with applicable criteria.

21.20.2 In cases where completion of these required repairs or renovations are unrealistic within the prescribed period, a Secretary of the Navy (SECNAV) waiver (Section 4.6) is required. Waiver requests must include a plan of action for corrections.

21.20.3 Facility closure is warranted when:

- The CDC possesses imminent, life-threatening, "priority" deficiencies as determined by fire/safety authorities.
- The command fails to complete a plan of corrective action.
- See Section 4.6.1.